

Abstract

The present invention provides a method for increasing the accuracy of measurement of mean differential group delay (DGD) from the polarization mode dispersion (PMD) in optical fiber. The method includes a systematic correction to mean-square DGD measured with any conventional mean to minimize systematic error caused by finite source bandwidth. The method further includes a systematic correction to the measurement of mean DGD and mean square DGD from statistics of the second-order PMD (SOPMD) obtained with frequency domain PMD-measuring apparatus. The probability density function (PDF) of either the vector or scalar SOPMD is applied, depending on which quantity is measured. The systematic correction is made to minimize the systematic error in estimating mean DGD, caused by finite source bandwidth, to achieve a two-fold reduction of the measurement variance equivalent to doubling the source bandwidth.